to fresh water. In still weaker mixtures (1 in 8, or 1 in 10) spontaneity persists for a long time; but the animal gradually becomes less and less energetic, till at last it will only move in a bout of feeble pulsations when irritated. In still weaker solutions (1 in 12 or 1 in 15) spontaneity continues for hours, and in solutions of from 1 in 15 to 1 in 18 the Medusa will swim about for days.

It will be seen from this account that the freshwater Medusa is even more intolerant of sea water than are the marine species of fresh water. Moreover the freshwater Medusa is beyond all comparison more intolerant of sea water than are the marine species of brine. For I have previously found that the marine species will survive many hours' immersion in a saturated solution of salt. While in such a solution they are motionless, with manubrium and tentacles relaxed, so resembling the freshwater Medusa shortly after being immersed in a mixture of 1 part sea water to 5 of fresh; but there is the great difference that while this small amount of salt is very quickly fatal to the fresh-water species, the large addition of salt exerts no permanently deleterious influence on the marine species.

We have thus altogether a curious set of cross relations. It would appear that a much less profound physiological change would be required to transmute a sea-water jelly-fish into a jelly-fish adapted to inhabit brine, than would be required to enable it to inhabit fresh water. Yet the latter is the direction in which the modification has taken place, and taken place so completely that sea water is now more poisonous to the modified species than is fresh water to the unmodified. There can be no doubt that the modification was gradual—probably brought about by the ancestors of the freshwater Medusa penetrating higher and higher through the brackish waters of estuaries into the fresh water of rivers—and it would, I think, be hard to point to a more remarkable case of profound physiological modification in adaptation to changed conditions of life. If an animal so exceedingly intolerant of fresh water as is a marine jelly-fish may yet have all its tissues changed so as to adapt them to thrive in fresh water, and even die after an exposure of one minute to their ancestral element, assuredly we can see no reason why any animal in earth or sea or anywhere else may not in time become fitted to change its element.

GEORGE J. ROMANES

## *NOTES*

THE Fiftieth Annual Meeting of the British Association will commence on Wednesday, August 25, 1880, at Swansea. The President Elect is Andrew Crombie Ramsay, LL.D., F.R.S., Director-General of the Geological Survey of the United Kingdom and of the Museum of Practical Geology. The Vice-presidents Elect are: The Right Hon. the Earl of Jersey, the Mayor of Swansea, the Hon. Sir W. R. Grove, D.C.L., F.R.S., H. Hussey Vivian, M.P., F.G.S., L. Ll. Dillwyn, M.P., F.L.S., J. Gwyn Jeffreys, LL.D., F.R.S.; and the General Secretaries: Capt. Douglas Galton, C.B., D.C.L., F.R.S., 12, Chester Street, Grosvenor Place, London, S.W., Philip Lutley Sclater, Ph.D., F.R.S., 11, Hanover Square, London, W.; Assistant-Secretary: J. E. H. Gordon, 22, Albemarle Street, London, W.; General Treasurer: Prof. A. W. Williamson, Ph.D., LL.D., F.R.S., University College, London, W.C.; Local Secretaries: W. Morgan, Ph.D., F.C.S., and James Strick, Swansea; and Local Treasurer: R. J. Letcher, Swansea. The Sections are the following:—A.—Mathematical and Physical Science.—President: Prof. W. Grylls Adams, F.R.S. Vice-Presidents: C. W. Merrifield, F.R.S.; C. W. Siemens, D.C.L., F.R.S. Secretaries: W. E. Ayrton; J. W. L. Glaisher, F.R.S.; Oliver J. Lodge, D.Sc.; Donald McAlister, B.Sc. (Recorder). B.—Chemical Science.—President: John Henry Gilbert, Ph.D., F.R.S. Vice-Presidents: I. Lowthian Bell, F.R.S.; William Crookes, F.R.S.; W. Chandler Roberts, F.R.S. Secretaries: Harold B. Dixon, F.C.S.: Dr. W. R. Eaton-Hodgkinson; P. Phillips-Bedson, D.Sc., F.C.S.; J. M. Thomson, F.C.S. (Recorder). C.—Geology.—President H. Clifton Sorby, LL.D., F.R.S. Vice-President: Prof. Archibald Geikie, LL.D., F.R.S., L. and E., Warington W. Smyth, F.R.S. Secretaries: W. Topley, F.G.S. (Recorder); W. Whitaker, F.G.S. D.—Biology.—President: A. C. L. G. Günther, M.D., F.R.S. Vice-Presidents: F. M. Balfour, F.R.S.; Prof. Newton, F.R.S.; F. W. Rudler, F.G.S. Secretaries: G. W. Bloxam, F.L.S. (Recorder); Prof. M'Nab, M.D. (Recorder); John Priestley; Howard Saunders, F.Z.S. E.—Geography.—President: Lieut.-General Sir John Henry Lefroy, C.B., K.C.M.G., F.R.S. Vice-Presidents:—Sir Henry Barkly, G.C.M.G., K.C.B., F.R.S.; Admiral Sir Erasmus Ommanney, C.B., F.R.S.; Lieut.-General Sir H. E. L. Thuillier, C.S.I., R.A., F.R.S. Secretaries: H. W. Bates, Assist.-Sec. R.G.S., F.L.S.; C. E. D. Black; E. C. Rye, Librarian R.G.S., F.Z.S. (Recorder). F.—Economic Science and Statistics.—President: George Woodyatt Hastings, M.P. Vice-Presidents: James Heywood, F.R.S.; William Newmarch, F.R.S.; Henry Richard, M.P. Secretaries: Noel A. Humphreys, F.S.S.; Constantine Molloy (Recorder). G.—Mechanical Science.—President: James Abernethy, C.E. Vice-Presidents: Prof. Osborne Reynolds, F.R.S.; Prof. James Stuart. Secretaries: A. T. Atchison (Recorder); H. Trueman Wood. The first general meeting will be held on Wednesday, August 25, at 8 p.m, precisely, when Prof. G. J. Allman, M.D., LL.D., F.R.S., L. & E., Pres. L.S., will resign the chair, and A. C. Ramsay, LL.D., F.R.S., V.P.G.S., Director-General of the Geological Survey of the United Kingdom, and of the Museum of Practical Geology, President-Elect, will assume the presidency and deliver an address. On Thursday evening, August 26, at 8 p.m., a *soirée*; on Friday evening, August 27, at 8.30 p.m., a discourse by Prof. W. Boyd Dawkins, F.R.S., on "Primæval Man"; on Monday evening, August 30, at 8.30 p.m., a discourse by Francis Galton, M.A., F.R.S., on "Mental Imagery"; on Tuesday evening, August 31, at 8 p.m., a *soirée*; on Wednesday, September 1, the concluding general meeting will be held at 2.30 p.m. On Saturday evening, August 28, Henry Seebohm, F.Z.S., will deliver a lecture to the operative classes on "The North-East Passage"; tickets can be purchased of the local secretaries. A room will be provided for the reception of apparatus and specimens illustrative of papers communicated to the sections. Excursions to places of interest in the neighbourhood of Swansea will be made on Thursday, September 2, and short excursions on the afternoon of Saturday, August 28.

WE regret to announce the death of M. J. M. Gaugain, the eminent French electrician, at the age of seventy years. We shall give some account of his life and work next week.

THE Committee for the erection of a statue to Gauss have just issued a note, from which we learn that on the 27th instant (11.30 A.M.) the statue—modelled, as we have previously announced, by Prof. Schafer of Berlin, and cast by Prof. Howaldt—is to be unveiled. The Committee will be happy to have the names of any English mathematicians or gentlemen who may be willing, or who intend, to take part in the festivities which are to accompany the ceremony of unveiling. Applications should be addressed at once to the Landsyndicus Otto, Gauss Monument Committee, Braunschweig (Brunswick).

A CORRESPONDENT, J. H. S., sends us the following notice of Dr. E. L. Moss, who has shared the fate of the *Atalanta*:—"It seems to have escaped the notice of the scientific world the loss it has sustained in the ill-fated *Atalanta*. Dr. Edward L.

Moss, one of the officers on board that vessel, besides being a surgeon of renown in the navy, was also, in the best sense of that phrase, a scientific man. His papers read before the British Association, and his remarks at sectional meetings over a large range of natural history subjects (I remember such particularly at the last Plymouth meeting) will be fresh in the minds of many. He was one who, always observing and storing up facts, at whatever part of the world he might be, could clearly and systematically arrange them, and also employ them if required with convincing force. Such opportunities for observation were many and various. His profession, and the high estimation in which he was held by the naval authorities making him a picked man for any special service. By no means his least accomplishment was the masterly way in which he wielded brush and pen. In the Arctic Expedition of 1875-76 he served on board H.M.S. *Alert*, and to the astonishment of every one brought back with him from that expedition a number of most beautiful finished water-colour paintings and sketches in black and white. These were all made on the spot in those far-off regions, and are, I believe, the only examples in colour, painted from nature, of those dreary, cold solitudes, and consequently were the first intimation to the majority of people of the gorgeous effects of colour to be seen there. I remember him telling me about the trouble it was to keep his pigments fluid and the devices he had to resort to to effect that result. Many of these paintings and drawings (in facsimile), with a vivid and most interesting descriptive narrative, were published in his book, 'Shores of the Polar Sea.'"

Mr. W. A. Forbes, B.A., the Prosector to the Zoological Society, is leaving England by the mail steamer to-day for a short visit to the province of Pernambuco, Brazil. One of the chief objects of his visit will be to obtain specimens in spirit of the various Neotropical Mesomyodian *Passeres*, as well as of *Bucconidæ* and other birds. During his absence all communications relating to animals in the Gardens, &c., should be addressed to Mr. J. J. Lister, B.A., who has undertaken Mr. Forbes's prosectorial duties during the absence of the latter.

The numerous friends of the late Prof. A. H. Garrod will be glad to hear that a "Garrod Memorial Fund" has been set on foot, with the object of reprinting, in a complete and separate form, all his published papers, both physiological and zoological. We hope to be able to announce further particulars shortly.

Amongst the peculiar institutions of Paris are the street astronomers, who exhibit through their telescopes the moon, sun-spots, comets' tails, and other celestial objects, according to circumstances. Their charges vary from 1*d.* in the suburbs to 5*d.* on the Place de la Concorde or the Place Vendôme, where the instruments are not unworthy of a regular observatory. At the last monthly meeting of the scientific journalists M. Flammarion read an address sent to him by the corporation of these itinerant teachers of the marvels of the heavens. They state that from the beginning of the publication of the "Astronomie Populaire" the number of their customers has more than doubled.

The establishment in Paris of a system of pneumatic clocks has not put a stop to the experiments for transmitting the observatory time by electricity not only to the several public clocks of Paris, but all over France, taking advantage of the telegraphic wires. A commission has been appointed by the Municipal Council of Paris to select between the several systems which have been proposed on competition.

Among the statues which have been exhibited in the *Salon* at the Palais de l'Industrie, Paris, two large monuments, to commemorate Denis Papin at Blois and Leverrier at Paris, have largely attracted public notice. The astronomer is represented erect, wearing his usual dress, and supporting in his left hand a celestial sphere; the right is pointing to the heavens.

The U.S. Congress, we learn from the *Electrician*, has voted the sum of 15,000 dollars for a statue of the late Prof. Joseph Henry, to be placed in the grounds of the Smithsonian Institution.

The *Colonies* draws attention to the establishment of a "School of Agriculture" at Canterbury, New Zealand, with the object of affording students the opportunity of acquiring a thorough knowledge of the science and practice of agriculture. The institution, which is under the direction of Mr. W. E. Ivey, M.R.A.C., F.C.S., is situated near Lincoln, about twelve miles from the city of Christchurch; and in addition to the school buildings—comprising lecture theatre, library, museum, chemical laboratory, &c.—has attached to it a farm of 500 acres of land of various qualities, from rich swamp pasture land to light and comparatively thin soil overlying shingle. A portion of the farm is devoted to experimental purposes to test the value of different methods of cultivation, the effect of manures on various crops, the qualities of indigenous and exotic grasses, and the suitability and comparative worth of new varieties of cereals, roots, fodder, and other plants. The students will be required to take part in the regular daily practical work of the farm, to acquire a practical knowledge of ploughing and every other kind of farm work, the use of implements and machinery, the management of stock, and the making of cheese and butter. They will also receive practical instruction in agricultural chemistry in the laboratory. Land surveying and levelling will be undertaken at suitable times for practice in the use of instruments, in measuring land, in harvest and other piece work, and for taking levels for drainage purposes. Lectures and instruction will be given to various subjects connected with agriculture, chemistry, botany, entomology, veterinary medicine, &c. Under the present rules candidates for admission as resident students are required to pass a preliminary examination; and must be between the ages of fifteen and nineteen.

From the reply of Earl Spencer last Thursday in the House of Lords to a question as to the teaching of agricultural science by the Science and Art Department, we are glad to find that at least the "utility" of science is beginning to be recognised in high places. "There was no more important matter," the Earl said, "than the application of science to the art of agriculture. Great attention had of late years been very properly called to the great aid which science gave to the various classes of manufacturers and producers; and that principle applied with quite as great force to agriculture as to any other art. That was especially the case at the present moment, when the country was inquiring narrowly into the whole of our agricultural system. If science could enable our agriculturists to produce more from the land than they had hitherto done it would add another to the many useful things it had been the means of accomplishing. It had been decided," the Earl went on to state, "by the department, in consequence of the pressure for accommodation for science classes and for instruction in various branches, not to have a special class for agricultural science this year, seeing that botany, geology, and chemistry, which were so intimately connected with agriculture, were taught separately. Since he had come into office, however, the department had decided that a class for agriculture should be held in August next."

The Midland Union of Natural History Societies held its third annual meeting at Northampton on Thursday and Friday last, 17th and 18th inst., under the presidency of Sir Herewald Wake, Bart. The Union consists of twenty-four societies in the central counties, and numbers nearly 3,000 members. Its object is to encourage natural history studies, and to make local students residing far apart known to each other. So far its success has been most marked. At Birmingham in 1878, at Leicester last year, and at Northampton this year, it has brought together naturalists from Nottingham, Burton, Leicester, Bedford, Peterborough, Hereford, Welshpool, Shrewsbury, Cheltenham, Stroud, Birmingham, and other places, and has afforded opportunities for intercourse between many who were previously strangers. The presidential address was brief, but interesting and suggestive. Lord Lilford took part in the proceedings, and read an admirable paper on ornithological topics. He exhibited nearly 200 specimens of birds taken chiefly in North Northamptonshire, the bulk of which he presented to the Northamptonshire Naturalists Society, of which he is president. The report of the council gave an outline of work done by the various societies in the Union during the past twelve months. In the evening an interesting scientific *conversazione* was provided in the Town Hall, and was largely attended. On Friday the members divided into two parties, one of which explored the geology of the district under the guidance of Mr. Hull; the other, led by Mr. Scriven, visited Castle Ashby, the seat of the Marquis of Northampton, and devoted the bulk of their time to botanising in Yardley Chase, &c. The meeting was in every way a success. The next year's meeting will be held at Cheltenham, and Dr. T. Wright, F.R.S., is the president elect.

M. Daubrée, director of the French School of Mines, has published an essay on Descartes, in which he summarises the services rendered by that philosopher to science. He reminds his readers that Descartes advocated the theory of an igneous origin for the earth, and he enters into a lengthened discussion of the objections which may be raised against the theory of actual causes, as advocated by Lyell.

The City and Guilds of London Institute for the Advancement of Technical Education has definitively accepted from Her Majesty's Commissioners for the Exhibition of 1851 a site for the Central Institution in Exhibition Road. The site is 300 feet long, and is between the temporary French and Belgian Courts. The advantages of this site are its proximity to the museums and libraries, and science and art schools of South Kensington. The central institution, when erected, will be used for the training of teachers, and will provide the highest technical instruction to students who have already obtained such a knowledge of the elements of science as is furnished by the School of Mines and other scientific institutions.

Reports continue to appear of the unusual quantity of drift ice met with in the North Atlantic by vessels sailing between this country and America. Do not these "numerous fields of ice" met with indicate an unusually early and extensive break-up of the Arctic ice-sheet, and extreme meteorological conditions in the Polar area?

Mr. Frank Buckland has been awarded a gold medal and a decorated diploma of honour by the authorities of the Berlin International Fishery Exhibition.

Père Marc Dechevrens, the Director of the Zikawei Observatory, near Shanghai, has lately published an important essay on the disastrous typhoon of July 31, 1879, accompanied by remarks on other typhoons in the autumn of the same year.

By recent intelligence from New South Wales we learn that very rich silver lodes, with a large quantity of gold, had been discovered at the Nambuccra River, and that gold had also been found near Moama, on the Murray.

In his just published Consular Report from Saigon, Mr. Tremlett furnishes some further notes respecting *hwang-nao*, to which we have referred on a previous occasion. It is said to be a bush, and to present something of the appearance of ivy; it is only found in mountains of limestone formation. It is said to cure the bite of the most venomous serpents, and has been successfully employed in curing cancer and principally leprosy, in the treatment of which it has never given other than satisfactory results. The native physicians, Mr. Tremlett remarks, distinguish thirty-six kinds of leprosy, the most common attacking the feet and hands; it is considered to be hereditary, and is usually contracted by children at the age of puberty. After some generations it has been noticed to confine itself to either the male or the female members of the family; the disease is considered contagious, which only would account for the large number of lepers in Tongking.

In the last aëronautical ascent which was made at Rouen on Monday, June 13, by M. Jovis, M. Desmaret, one of the aëronauts, tried with success to take photographs of the land below. About fifteen different views were taken by him, and are wonderfully executed. The car had a hole in the centre, and the photographic apparatus was supplied with a patent obturator working in one-hundredth of a second. The photographs were of course taken by instantaneous process.

We notice some interesting geological researches by M. Kontkevitch on the eastern slopes of the Oural Mountains. They will be an important addition to the well-known map of the western slope published some years ago by Prof. Möller.

We have received the tenth volume of the *Memoirs* of the St. Petersburg Society of Naturalists, which contains, besides the minutes of meetings of the Society, a series of interesting papers:—A *résumé* of our knowledge on the Silurian in the Governments of St. Petersburg and Esthonia, by Prof. Friedrich Schmidt; on the ornithological fauna of the marshes of the district Uman (province Kieff), by G. Th. Göbel; a monograph on the sponges of the White Sea, by K. S. Merejkovsky; on the algæ of the Gulf of Finland, by Chr. Gobi; ornithological observations on the province of Ryazan, by P. Pavloff; on the birds of the tracts between the Amou and Kouvan-djarma Rivers, by M. Boutleroff; on the structure of the eye-like spots in certain fishes, by MM. Ousoff; and a flora of the Phanerogams of the Government of Tver, by A. A. Bakounin.

In the *Sessional Proceedings* of June 4 of the National Association for the Promotion of Social Science will be found an extremely interesting discussion of the subject of educational pressure among girls, by various ladies connected with well-known girls' schools, and others.

The additions to the Zoological Society's Gardens during the past week include two Rhesus Monkeys (*Macacus erythræus*) from India, presented respectively by Mr. W. Connell, and Mr. George L. Amlot; a Quica Opossum (*Didelphys quica*) from Demerara, presented by Capt. E. Ball; an Azara's Fox (*Canis azaræ*) from South America, presented by Mr. Edward Cooper; a Greater Sulphur-crested Cockatoo (*Cacatua galerita*) from Australia, presented by Mrs. M. A. Brown; two Common Gulls (*Larus canus*), European, presented by Mr. J. Castell; a Dominican Gull (*Larus dominicanus, jv.* ?) from New Zealand, presented by Capt. R. Bower; a —— Buzzard (*Buteo sp. inc.*) from Tasmania, presented by Capt. J. Seaborne; a Salt Water Terrapin (*Clemmys terrapin*) from North America, presented by Mr. A. D. Bartlett; a Common Ocelot (*Felis pardalis*) from Demerara, a Brown Capuchin (*Cebus fatuellus*) from Guiana, a Weeper Capuchin (*Cebus capucinus*) from Brazil, an Australian Crane (*Grus australasiana*) from Australia, deposited; two Virginian Deer (*Cariacus virginianus*) from North America, four Beautiful Finches (*Estrelda bella*) from Australia, purchased; a Leonine Monkey (*Macacus leoninus*) from Arracan, a Slow Loris (*Nycticebus tardigradus*) from Malacca, two Bay Bamboo Rats (*Rhizomys badius*) from India, two Sumatran

Wild Dogs (*Canis rutilans*) from Sumatra, a Javan Adjutant (*Leptoptilus javanicus*) from Java, received in exchange; a Wapiti Deer (*Cervus canadensis*), an Axis Deer (*Cervus axis*), born in the Gardens; three Siamese Pheasants (*Euplocamus prælatus*), two Horned Tragopans (*Ceriornis satyra*), two Peacock Pheasants (*Polyplectron chinquis*), four Mandarin Ducks (*Aix galericulata*), four Variegated Sheldrakes (*Tadorna variegata*), bred in the Gardens.

## *OUR ASTRONOMICAL COLUMN*

KEPLER'S NOVA OF 1604.—The vicinity of this object is now favourably situate for observation in the evenings, and it is well worth while to keep a close watch upon one or two small stars near the position deduced for Kepler's object by Prof. Schönfeld from the observations of David Fabricius, which he considered preferable to those of Kepler and his pupils, given in his celebrated work, "De Stella nova in pede Serpentarii," more especially upon a star of the twelfth magnitude, or fainter, observed by Prof. Winnecke in 1875, which is close upon the place of a star of the tenth magnitude inserted on Chacornac's chart, but not afterwards found of this degree of brightness, and which is still more significant, almost exactly in the position of Kepler's object assigned by the observations of Fabricius. The most convenient reference-star in this neighbourhood is one meridionally observed by Argelander, No. 16872 of Oeltzen's Catalogue, a bright ninth magnitude, the position of which for the beginning of the present year is in R.A. 17h. 23m. 52·2s., N.P.D. 111° 23′ 22″; Schönfeld's place of Nova 1604 for the same epoch is in R.A. 17h. 23m. 26·9s., N.P.D. 111° 22′ 32″; Winnecke's star precedes Argelander's 33·2s., in 2′·7 less N.P.D. There is a somewhat brighter star preceding Argelander's 18·8s. with 1′·6 greater N.P.D., which, after several years' observation, has not exhibited any sensible fluctuation of magnitude. Attention should be chiefly directed to Winnecke's object, and it would be desirable to know its present magnitude, which some reader of this column may have the opportunity of putting upon record; we would, however, suggest its *frequent* observation.

There is no reason to suppose, notwithstanding the name of "temporary stars" which has been attached to them, that either Tycho Brahe's famous star of 1572, Kepler's of 1604, or the less conspicuous star discovered by Anthelm in 1670, have died out; on the contrary, in all three cases there are now small stars close upon the best positions which we can assign to the objects of those years, in which some fluctuations of brightness have been remarked after very careful observation.

WESTPHAL'S COMET (1852 IV).—In Mr. Chamber's useful manual of astronomy there is an oversight with respect to the orbit of the comet discovered by Westphal at Göttingen in June, 1852, the elliptic character of which was first made apparent by the computations of Mr. Marth towards the end of the same year. Elements derived from the earlier calculations are given in place of the definitive orbit deduced by Dr. Axel-Möller or the similar very completely-investigated orbit by the discoverer; hence the comet is credited with a period of revolution which is certainly ten years in excess of that belonging to the ellipse in which it was moving during its appearance in 1852. Dr. Axel-Möller's orbit is as follows:—

Perihelion passage, 1852, October 12·76278 G.M.T.

| | ° | ′ | ″ | |
|---|---|---|---|---|
| Longitude of perihelion ... ... | 43 | 14 | 8 | Mean equinox, 1852·0 |
| ,, ascending node ... | 346 | 9 | 49 | |
| Inclination ... ... ... ... ... | 40 | 54 | 28 | |
| Angle of excentricity ... ... ... | 66 | 42 | 8·36 | |
| Log. semi-axis major ... ... ... | 1·1855845 | | | |

Motion—direct.

With these elements we find:—

| | |
|---|---|
| Semi-axis major ... ... ... ... | 15·3315 |
| ,, minor ... ... ... ... | 6·0637 |
| Excentricity ... ... ... ... ... | 0·9184625 |
| Aphelion distance ... ... ... ... | 29·4129 |
| Perihelion distance ... ... ... ... | 1·2501 |
| Revolution ... ... ... ... ... | 60·031 years |

It is easy to see by what action the comet has been at some past time in all probability fixed in this orbit till similar perturbation recurs. In a true anomaly of 126° 30′ after perihelion or in ecliptical longitude 168° 52′, the comet is distant from the orbit of Jupiter only 0·36 of the earth's mean distance from the sun, and so close an approach of the two bodies would almost certainly result in the impression upon the comet of an orbit, materially differing from that in which it moved previously; this we know has occurred in several instances since the motions of comets have been rigorously investigated, a notable case being that of Brorsen's comet, which is now moving in an orbit into which it was thrown by its encounter with Jupiter in May, 1842.

## *GEOGRAPHICAL NOTES*

IN yesterday's *Times* is a letter from Mr. Thorndike Rice, giving details of the programme of the expedition to Central America, under the leadership of M. Charnay, for the exploration of the ancient monuments there, and to which we referred some time ago. Casts will be taken of all important bas-reliefs and inscriptions, part of which will be deposited in the Smithsonian Institution, and part sent to Paris. Details of the work of the expedition will be published from time to time in the *North American Review*.

CONSIDERABLE attention is still attracted in Australia to the supposed existence in recent years of a survivor of Leichhardt's great exploring expedition, which disappeared in 1848. Numerous lengthy communications have been published by the Colonial press, which tend to confirm the belief that an aged European, not improbably Classen, as we have before mentioned, was living with the blacks near the Queensland border until some four years ago. A man has also come forward at Sydney and made a curious statement to the effect that he was a sailor on board a steamer which was sent by the South Australian Government in 1867 to take cargo to the Roper River, Gulf of Carpentaria, and that on landing some ten miles to the south of the mouth of that river he met natives who told him that three days journey up the river there was an old white man with a very long beard. The position mentioned would, it is thought, be very near the Elsey, where it has been before suggested that something might be found out about the fate of Leichhardt's party. It is to be regretted that the different persons who have contributed items of information did not come forward sooner with their contributions, however small, towards the solution of this mystery, as it might have been cleared up ere this.

THE s.s. *Eira*, recently launched, left Peterhead on Saturday morning for the Arctic regions on a voyage of discovery. She has a crew of some twenty-five, and carries a photographer, the same who accompanied Capt. Nares, and a doctor. The steamer has been coaled and provisioned for two years, but her return is expected before that time.

THE Ontario correspondent of the *Colonies and India* states that the construction of the long-talked-of railway across the island of Newfoundland has at length been decided upon; it will be 350 miles long, and will be of great benefit to the island.

IN his report on the department of maps, charts, &c., at the British Museum, Mr. Major notes the undermentioned interesting additions during the past year:—A large English chart on parchment of the coasts of Brazil and Africa of the early date of 1647, bearing the legend, "made by Nicholas Comberford, dwelling neare to the West end of the Schoole House, at the XX signe of the Plat in Radcliffe, anno 1647." Also two illuminated and gilt MS. maps on parchment, the one of the coasts of Florida, New Spain, and Africa (1688), and the other of the West Indies (1698). These are by Jose da Costa Miranda. Another valuable acquisition is an important plan of Paris in seventy-two sheets, constructed by Varniquet, and finished in 1791, after thirty years' labour.

THE new number of the Belgian Geographical Society's *Bulletin* opens with a paper on the geography of Lake Tanganyika, which was prepared by Lieut.-Col. Adan for the committee of the International African Association; it is illustrated by an interesting reproduction on one sheet of various maps, exhibiting the views of cartographers on the shape of the lake. The other papers are by Dr. Litton Forbes on the Island of Rotumah, and by M. A. J. Wauters on the African elephant.

## *SIR JOHN LUBBOCK ON THE HABITS OF ANTS*

IN a further contribution of his observations towards elucidating the economy and habits of these insects, laid before the last meeting of the Linnean Society (June 17), Sir John commenced